Homenoptera
(aphids) Bwa
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The BALSAM WOOLLY APHID

a
true
fir killer
introduced
from europe and
now threatening
billions of board feet
of timber
in western forests

2113

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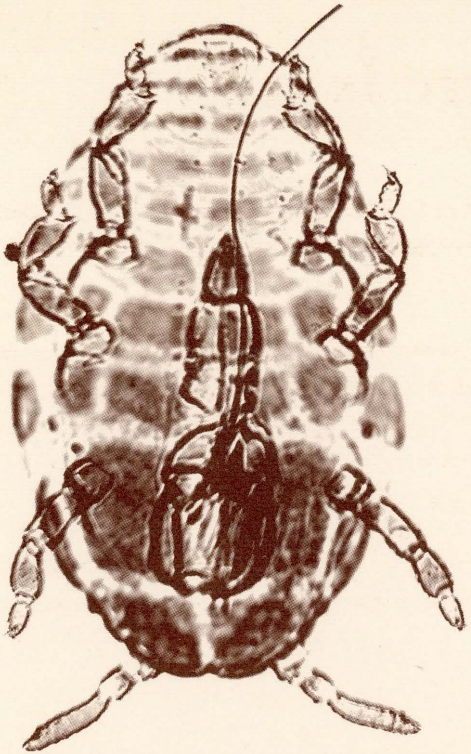
What Is This Killer?



- *It is a minute sap-sucking insect brought from Europe to North America in the early 1900's.*
- *One female can give birth to 10,000 offspring each year. Her tremendous capacity to reproduce is carried on without the male. It is very efficient since no male is required.*
- *Because of this reproductive potential, a favorable environment, and few natural enemies, the aphid thrives in the new world.*

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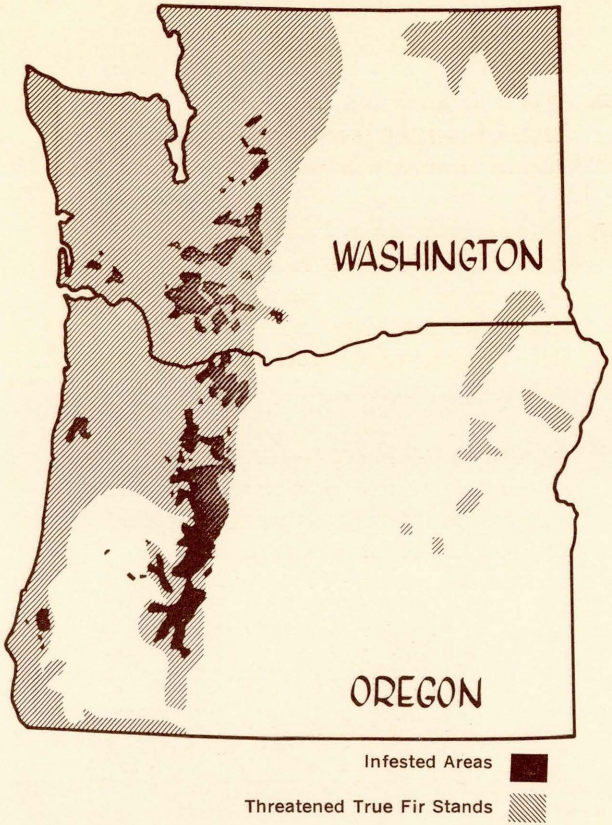
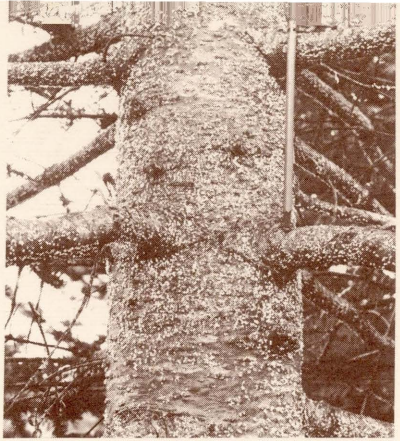


Where Is It?

- The aphid is widely distributed in the Northwest from southern British Columbia to Crater Lake National Park in Oregon.
- Since its discovery in the Northwest, the aphid has been recorded as epidemic on 2.9 million acres in Oregon and Washington. Some of the most severe outbreaks have occurred in Wilderness areas, National Parks and other high value recreation areas.
- The aphid also destroys trees in eastern Canada, New England, and the southern Appalachians.

What Does It Do?

- The aphid damages and kills trees by sucking on living tissue beneath the bark. Most North American true firs are attacked and usually are seriously weakened or killed by the aphid. European true firs are relatively immune to aphid damage, even though heavily infested.
- Grand fir, Pacific silver fir, and subalpine fir are the principal targets of the aphid in the Northwest.
- Heavy trunk infestations can kill a tree in 3 to 5 years by blocking the water flow in the trunk. Swelling or gouts on twigs and branches kill trees more slowly by preventing foliage growth.

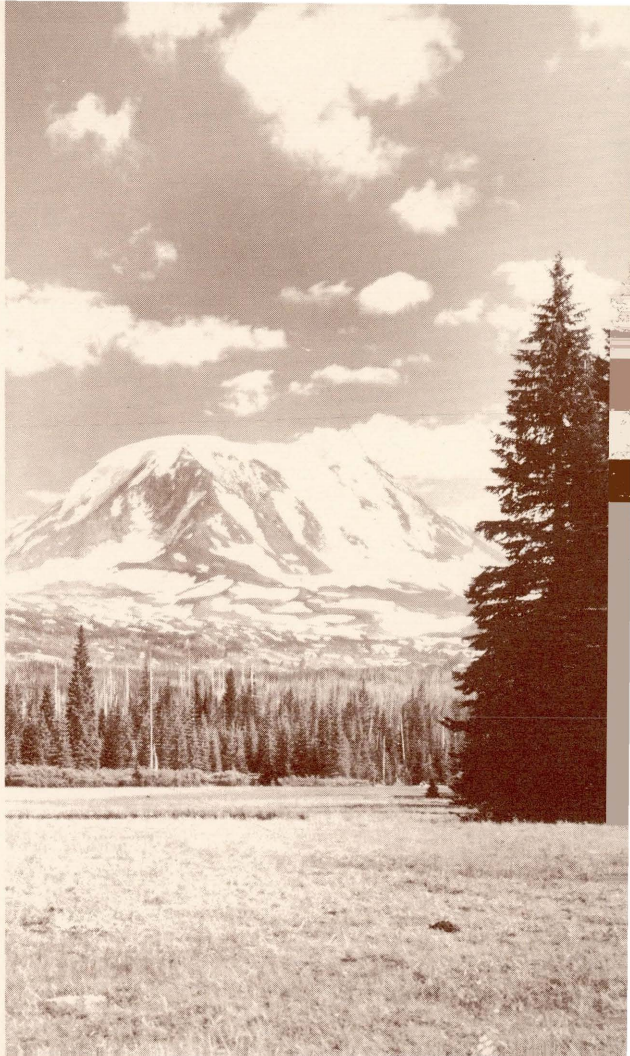


TRUNK INFESTATION on subalpine fir. The aphid gets its name from the waxy "wool" protective coat it exudes.

GOUTING CAUSED by aphid feeding around buds on subalpine fir.

What Do We Stand To Lose?

- The aphid already has killed billions of board feet of true firs in the Northwest and threatens to decimate the extensive remaining susceptible forests. It is a potential threat to firs everywhere in the West.
- Drastic environmental changes in its wake exact a heavy financial and aesthetic toll on:
  - Recreation areas
  - Watersheds
  - Wildlife habitats
  - Commercial forests



ALPINE MEADOWS near timberline. The aphid will eliminate the subalpine fir and reduce recreational value of the area.

What Effort Is Needed?

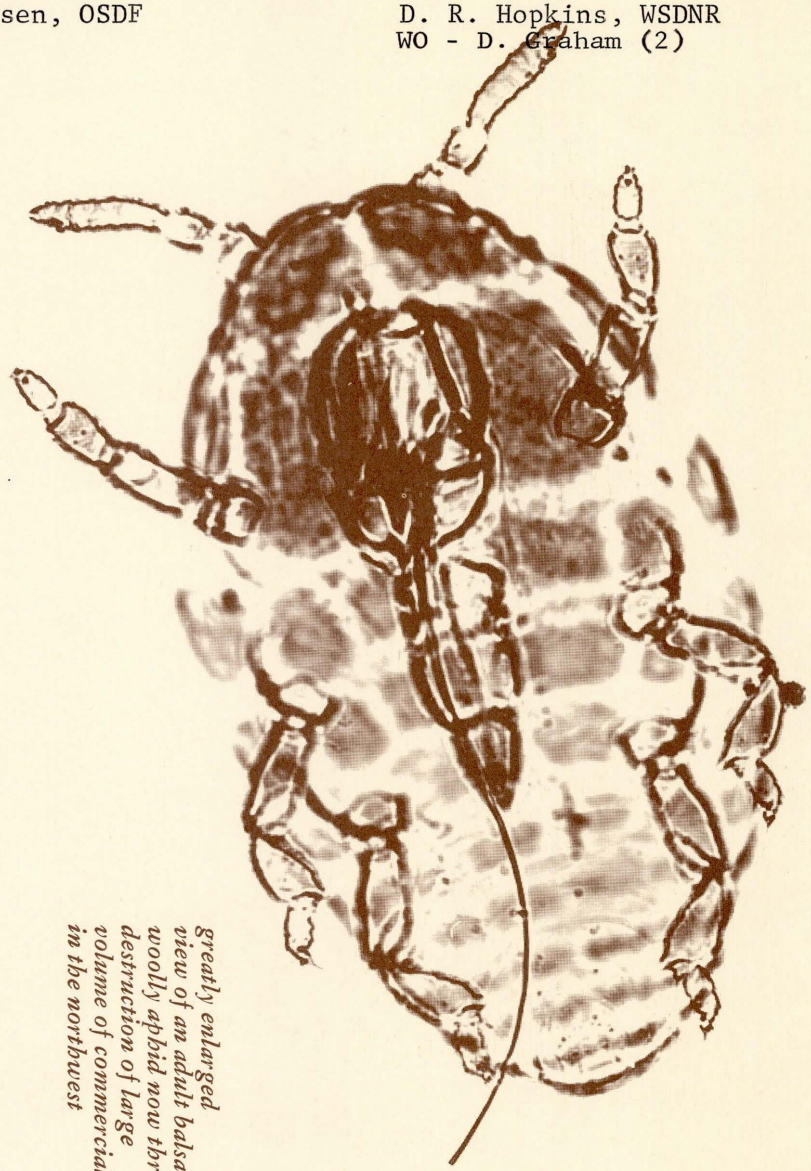
- A concerted cooperative program by insect and plant physiologists, histologists, chemists, biochemists, geneticists, and other specialists is needed for:
  - SURVEYS — Develop better ways to detect spread.
  - BIOLOGY AND ECOLOGY — Determine vulnerable points in life cycle and habits of the aphid.
  - INSECT-TREE RELATIONSHIPS — Determine why New World true firs are extremely susceptible to the aphid.
  - GENETIC INVESTIGATIONS — Select and develop genetically resistant trees.
  - CONTROL — Develop chemical or other control measures.

What Is The Price Tag?

the needed
research would cost
approximately $2 million
over a 10-year period

Distribution:

R. G. Mitchell, FSL
K. H. Wright, PNW
P. G. Lauterbach, Weyerhaeuser, Tacoma
A. T. Larsen, OSDF
John Mahoney, NPS
Morris Bergman, Will. Valley Lumber Co.
D. R. Hopkins, WSDNR
WO - D. Graham (2)



greatly enlarged view of an adult balsam woolly aphid now threatening destruction of large volume of commercial true firs in the northwest

Prepared by:
NORTHWEST PEST ACTION COUNCIL, 5561 WHITE-HENRY-STUART BLDG., SEATTLE, WASHINGTON 98101